

REMARKS

Reconsideration of the above-identified application in view of the foregoing amendments and following remarks is respectfully requested.

A. Status of the Claims and Explanation of Amendments

Claims 1, 2, 4, 5, 8-12, 14-21 were pending. By this paper, claims 1, 5, 10, 14, and 17 are amended, claims 19-21 are cancelled without prejudice or disclaimer, and new claims 22-25 are added. Support for these amendments is found throughout the specification and drawings, as originally filed, for example Figures 7A and 15 and their associated text. No new matter is believed to be added by these amendments. Entry is requested.

The April 5, 2006 Office Action admitted the novelty over of the prior art of the then-pending claims 1, 2, 4, 5, 8-12, and 14-21. However, these claims were rejected under 35 U.S.C. § 103(a) allegedly as being unpatentable over Deter et al., U.S. Patent No. 5,822,022 (“Deter”) in view of Flint, U.S. Patent No. 6,351,324 (“Flint”) and Baba et al., U.S. Patent No. 6,626,542 (“Baba”).

At the outset, Applicant expresses gratitude for the courtesy extended by the examiner to discuss the pending rejections and differences between Applicants’ disclosure and the cited references during today’s telephonic interview.

B. Claims 1, 2, 4, 5, 8-12, 14-18 are Patentably Distinct
from Deter In Combination With Flint and Baba

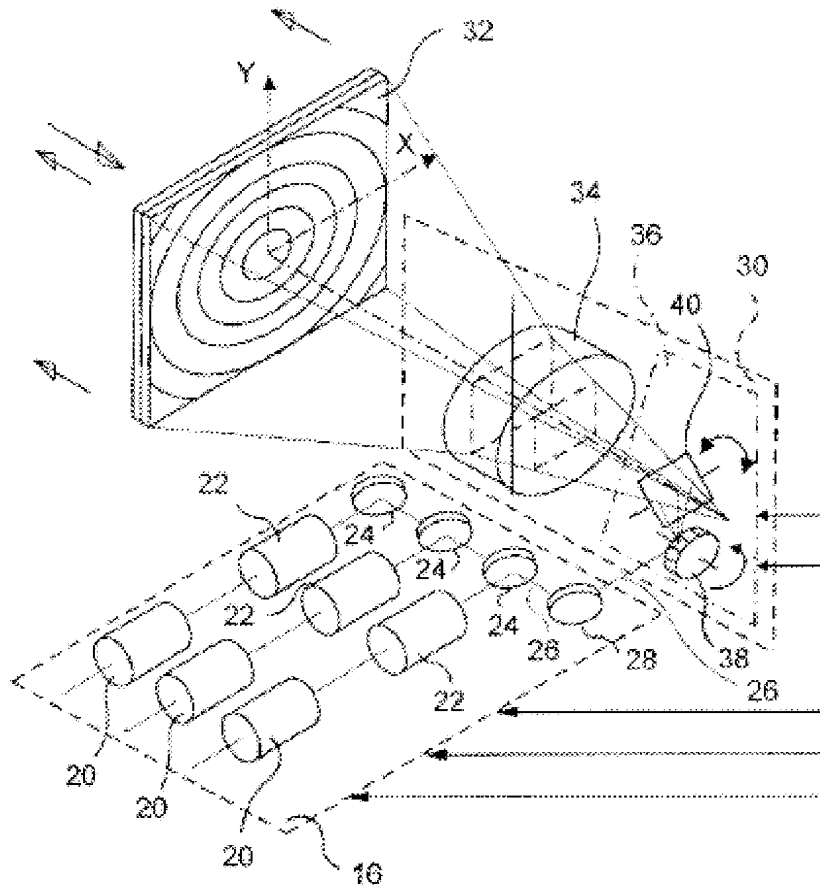
The rejection of claims 1, 2, 4, 5, 8-12, 14-18 is respectfully traversed. As explained more fully below, the requirements for such rejections are not met since none of the cited references discloses two rotation mechanisms as recited in Applicant's claim 1.

Specifically, Applicant's claim 1 recites:

1. A scan type display optical system comprising:
 - a mirror;
 - a first rotation mechanism which rotates the mirror to deflect and scan light with the mirror;
 - a second rotation mechanism which supports and rotates the first rotation mechanism; and
 - a projection optical system which has a plurality of optical surfaces including a reflective surface and projects the light from the mirror,wherein an incidence range of the deflected and scanned light to a first optical surface of the plurality of optical surfaces on which the deflected and scanned light is incident initially is variable by rotating the mirror through the first and the second mechanisms.

Deter is directed to a video system. In Deter's Figure 1 is shown an optical system (30) having a lens system (34) by which a light bundle (26) is projected onto a single picture screen (32). The optical system (30) has a raster scanning device (36) which deflects the light bundle (26) onto the picture screen (32) in a framewise and linewise manner in order to generate a video picture. A polygon mirror (38) is provided by Deter for linewise deflection on the picture screen (32) in the x direction shown in

Figure 1 (relevant portion reproduced below), while the framewise deflection is carried out in the y direction shown in the drawing by means of a swiveling mirror (40):



The office action contends that this swiveling mirror (40) corresponds to the mirror recited in Applicant's claim 1. The office action appears to concede¹ that Deter does not teach, disclose or suggest a mechanism which supports and rotates the optical scanning device. [4/5/06 Office Action at p. 3]. Applicant's own review of Deter confirms that Deter fails to teach, disclose or suggest "a second rotation mechanism

¹ If a subsequent office action is issued, the examiner is requested to clarify exactly what element(s) are not shown in Deter.

which supports and rotates the first rotation mechanism” as recited in Applicants’ claim 1.

Moreover, Deter’s optical system (30) is adapted to project a single light bundle (26) onto a single picture screen (32). There is no discussion of varying the optical surface to which Deter’s optical system (30) directs the light bundle (26), for example, from a first area to a second area or to a third area (each area of which could have its own image displayed). Accordingly, to the extent that mirror (40) is swiveled about the axles allegedly show in Figure 1, there is no teaching, disclosure or suggestion in Deter that “an incidence range of the deflected and scanned light ... is variable by rotating the mirror through the first and the second mechanisms.”

The office action relies on Flint’s Figure 2 to allegedly show a mechanism which supports and rotates the optical scanning device. [4/5/06 Office Action at p. 3]. Flint is directed to a laser imaging system with progressive multi-beam scan architecture. Figure 2 shows an embodiment of Flint’s progressive scanning display system that progressively scans two modulated beams onto a single screen (270). [Flint, Col. 7, lines 29-33]. In that figure, two modulated laser beams are reflected by two separate scanners—from a polygon scanner (230) to a galvo scanner (250).

The polygon scanner (230) includes a polygon mirror (233), i.e., a rotating disk-shaped component having a perimeter that includes a series of approximately flat reflective facets (234). A rotating mechanism (240) rotates the polygon mirror about its central axis (239).

The galvo scanner (250) includes an approximately rectangular galvo mirror (252) and a galvanometer mechanism (254) to controllably rotate the mirror (252) about an axis (256).

Thus, the two rotating mechanisms (240, 254) in Flint's system are adapted to rotate two different mirrors, i.e., polygonal mirror (233) and galvo mirror (252). Accordingly, Flint fails to teach, disclose or suggest "a second rotation mechanism which supports and rotates the first rotation mechanism" as recited in Applicants' claim 1.

Moreover, the two rotating mechanisms (240, 254) in Flint's system are designed to maintain a single incident range of the projected light, i.e., onto screen (270). Accordingly, Applicant further believes that Flint does not teaches, disclose or suggest that "an incidence range of the deflected and scanned light ... is variable by rotating the mirror through the first and the second mechanisms."

The office action further relies on Baba and alleges that it discloses an at least partially reflective projection optical system. [4/5/06 Office Action at p. 4]. Without commenting on that assertion, Applicant notes there is no assertion in the office action that Baba discloses "a second rotation mechanism which supports and rotates the first rotation mechanism" or discloses "an incidence range of the deflected and scanned light ... is variable by rotating the mirror through the first and the second mechanisms" as recited in Applicants' claim 1. Indeed, Applicant's own review of Baba finds no such disclosure.

Accordingly, as Applicant cannot find all the recited elements of claim 1 in Deter, Flint or Baba, at least independent claims 1, 5, 15, and 17, and their dependent claims 2, 4, 8-12, 14, 16 and 18 are respectfully asserted to be in condition for allowance. For at least similar reasons, new claims 22-25 also are asserted to be patentable over the cited references.

The office action contains one statement which bears further comment in that it suggests:

“[a mechanism which supports and rotates the optical scanning device] was obvious to those of ordinary skill in the art at the time the invention was made, for example part 40 [of Deter] shows two bars that would form an axle which as those with ordinary skill in the art would recognize, these axles would be attached to a motor that would inherently have to be mounted somehow to support them (mirrors and motors do not have the ability to levitate in mid air.” [4/5/06 Office Action at p. 3].

To the extent that the office action is taking the position that the “second rotation mechanism” recited in Applicant’s claim 1 is allegedly inherent in Deter, Applicant respectfully disagrees. The allegedly axles depicted in the Figure, and to which the office action refers, *might* arguably permit rotation of Deter’s swiveling mirror (40) about a single axis. There is no motor shown in the figure. Indeed, the word “motor” is not found in Deter’s disclosure. If the above-quoted assertion is maintained, the examiner is requested to provide support for the assertion that, in Deter, the axles of the swiveling mirror “would be attached to a motor.”

Deter says nothing more than that the swiveling mirror (40) is “controlled” by a signal from a raster control (42). [Deter, Col. 8, lines 42-43]. In any case, such alleged, inherent functionality does not constitute a teaching, disclosure or suggestion of “a second rotation mechanism which supports and rotates the first rotation mechanism” as recited in Applicants’ claim 1. Nor is there any disclosure of Deter that would provide motivation for such a second rotation mechanism. Certainly, no such motivation was provided in the office action.

Applicant has chosen in the interest of expediting prosecution of this patent application to distinguish the cited documents from the pending claims as set forth above. These statements should not be regarded in any way as admissions that the cited documents are, in fact, prior art. Likewise, Applicant has chosen not to swear behind Baba, cited by the office action, at this time. Applicant, however, reserves the right, as provided for under 37 C.F.R. § 1.131, to do so in the future as appropriate.

Finally, Applicant has not specifically addressed the rejections of the dependent claims. Applicant respectfully submits that the independent claims, from which they depend, are in condition for allowance as set forth above. Accordingly, the dependent claims also are in condition for allowance. Applicant, however, reserves the right to address such rejections of the dependent claims in the future as appropriate.


Appl. No. 10/781,533
Paper dated June 22, 2006
Reply to Office Action dated April 6, 2006

CONCLUSION

For the above-stated reasons, this application is respectfully asserted to be in condition for allowance. An early and favorable examination on the merits is requested. In the event that a telephone conference would facilitate the examination of this application in any way, the Examiner is invited to contact the undersigned at the number provided.

THE COMMISSIONER IS HEREBY AUTHORIZED TO CHARGE ANY ADDITIONAL FEES WHICH MAY BE REQUIRED FOR THE TIMELY CONSIDERATION OF THIS AMENDMENT UNDER 37 C.F.R. §§ 1.16 AND 1.17, OR CREDIT ANY OVERPAYMENT TO DEPOSIT ACCOUNT NO. 13-4500, ORDER NO. 1232-5286.

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